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TRANSMITTAL OF APPEAL BRIEF (Small Entity)

Docket No.
03230006AA

Re Application Of: M. Carr, et al.

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/049,374	April 17, 2002	L. Leary	30743	1654	3657

Invention: **METHOD OF USING PLATELET CONTRACTILE FORCE AND WHOLE BLOOD CLOT ELASTIC MODULUS AS CLINICAL MARKERS**

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:
May 11, 2005

☒ Applicant claims small entity status. See 37 CFR 1.27

The fee for filing this Appeal Brief is: \$250.00

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Dated: June 7, 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of Carr, Jr.

Group Art Unit 1654

Serial No. 10/049,374

Examiner L. Leary

Filed April 17, 2002

Confirmation No. 3657

For: **METHOD OF USING PLATELET CONTRACTILE FORCE AND
WHOLE BLOOD CLOT ELASTIC MODULUS AS CLINICAL MARKERS**

MAIL STOP APPEAL BRIEF

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

APPELLANTS' BRIEF UNDER 37 C.F.R. § 41.37

In response to the action of the Primary Examiner in finally rejecting claims 1-11 of this application, a Notice of Appeal was timely filed May 11, 2005. This brief, which is filed herewith in triplicate, is in furtherance of the Notice of Appeal.

This brief contains these items under the following headings and in the order set forth below, as required under 37 C.F.R. § 41.37:

- I. REAL PARTY IN INTEREST
- II. RELATED APPEALS AND INTERFERENCES
- III. STATUS OF CLAIMS
- IV. STATUS OF AMENDMENTS
- V. SUMMARY OF CLAIMED SUBJECT MATTER
- VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
- VII. ARGUMENTS

☐ ARGUMENT VIIA. REJECTIONS UNDER 35 U.S.C. §112, FIRST

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PARAGRAPH

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☐ ARGUMENT VIIB. REJECTIONS UNDER 35 U.S.C. §112, SECOND
PARAGRAPH

☐ ARGUMENT VIIC. REJECTIONS UNDER 35 U.S.C. §102

☐ ARGUMENT VIID. REJECTIONS UNDER 35 U.S.C. §103

☒ ARGUMENT VIIE. REJECTION OTHER THAN 35 U.S.C. §§102, 103
AND 112

VIII. CLAIMS APPENDIX

IX. EVIDENCE APPENDIX

X. RELATED PROCEEDINGS APPENDIX

I. REAL PARTY IN INTEREST

The real party in interest in the appeal is:

- ☐ the party named in the caption of this brief.
- ☒ the following party:
HemoDyne, Inc., formerly of Richmond, VA, now of
Bethesda, MD

II. RELATED APPEALS AND INTERFERENCES

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal:

☒ there are no such appeals or interferences.

☐ these are as follows:

III. STATUS OF CLAIMS

The status of the claims in this application is as follows:

A. Total number of claims in Application

The claims in the application are: Claims 1-11, totaling 11 claims

B. Status of all the claims:

1. Claims cancelled: None
2. Claims withdrawn from consideration but not cancelled: None
3. Claims pending: Claims 1-11
4. Claims allowed: None
5. Claims rejected: Claims 1-11
6. Claims objected to: None

C. Claims on Appeal.

The claims on appeal are: Claims 1-11

IV. STATUS OF AMENDMENTS

The status of amendments filed subsequent to the final rejection is as follows:
There are no after-final amendments.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 1 is directed to a method for identifying patients at risk for atherosclerosis. Independent claim is directed to a method for identifying patients with a bleeding risk. The inventor is the first to identify clinical markers for patients at risk for atherosclerosis or patients that have bleeding risk. These clinical markers result from extensive analysis of blood samples obtained from patients treated in an emergency room. Furthermore, the clinical markers, which are treated as control values, and are the same for patients at risk for atherosclerosis or that have a bleeding risk, and include a platelet contractile force ranging from 5.4 to 8.4 kilodynes (see claims 2 and 6) and/or a clot elastic modulus ranging from 18 to 26 kilodynes per cm² (see claims 3 and 7). Note also the text on page 10 of the application at lines 10-18, which provides specific support for these claimed ranges.

There is ample clinical support for the aforementioned clinical markers in the patent specification. Figure 4 of the application shows data from 99 patients admitted to an emergency room complaining of chest pain, and demonstrates elevated platelet contractile force values. Figure 5 is a bar graph showing PCF values increase with the severity in the patient. Figure 6 is similar to Figure 4, and is a bar graph showing clot elastic modulus is elevated in patients admitted to an emergency room that are suffering from chest pain. Figures 7 and 8 shows that patients that were diagnosed with coronary artery disease had elevated platelet contractile force measurements and elevated clot elastic modulus. Figures 9 and 10 show that the platelet contractile force and clot elastic modulus were elevated in patients with hypercholesterolemia, and Figures 11 and 12 show that the platelet contractile force and clot elastic modulus were elevated in patients with diabetes mellitus. Variations among populations of different ethnicity (e.g., Italians) are presented in Figures 13-15. Figures 16 and 17 demonstrate that the deviations from the clinical markers elucidated by the inventor were not due to decreased aggregation (see also page 19, at lines 18-19).

Independent claim 9 is directed to a method of monitoring a treatment or therapy. This methodology involves taking a baseline platelet contractile force or clot elastic

modulus for the patient, then performing a treatment or therapy (e.g., administration of a drug, or providing some form of physical therapy, etc.), then taking another measurement of the platelet contractile force and/or clot elastic modulus, and comparing this measurement to the original baseline measurement. Figure 3 of the application shows a comparison of clot elastic modulus measurements for patients with documented coronary artery disease where one group received aspirin therapy and the other group did not. It can be seen from Figure 3 that the inventive methodology allows detecting the positive impact of aspirin therapy on the patient. This same methodology could be used to ascertain, for example, when a therapy is having no impact or a negative impact.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There are three grounds of rejection to be reviewed, all of which relate to prior patents of the applicant. These are:

a) Do claims 1-11 constitute obviousness type double patenting over claims 3-10 of U.S. Patent 5,293,772?

b) Do claims 1-11 constitute obviousness type double patenting over claims 5-9 of U.S. Patent 5,205,159?

c) Do claims 1-11 constitute obviousness type double patenting over claims 7-15 of U.S. Patent 4,986,964?

ARGUMENT VIIA. REJECTIONS UNDER 35 U.S.C. §112, FIRST PARAGRAPH

There are no rejections under 35 U.S.C. §112, first paragraph.

ARGUMENT VIIB. REJECTIONS UNDER 35 U.S.C. §112, SECOND PARAGRAPH

There are no rejections under 35 U.S.C. §112, second paragraph.

ARGUMENT VIIC. REJECTIONS UNDER 35 U.S.C. §102

There are no rejections under 35 U.S.C. §102.

ARGUMENT VIID. REJECTIONS UNDER 35 U.S.C. §103

There are no rejection under 35 U.S.C. §103. The claims would also not be obvious under 35 U.S.C. §103 for the same reasons set forth below in connection with the obviousness-type double patenting rejections.

ARGUMENT VIII. REJECTION OTHER THAN 35 U.S.C. §§102, 103 AND 112

In the response filed October 4, 2004, it was demonstrated that claims 1-11 did not constitute obviousness type double patenting over claims 3-10 U.S. Patent 5,293,772.

Claims 3-10 of U.S. Patent 5,293,772 are concerned with procedures for determining clot retraction force (PCF) and clot elastic modulus (CEM). These procedures are executed using a machine designed by the applicant of the present invention. These procedures require determination of a clot retraction force and a clot elastic modulus for a blood sample positioned between a pair of spaced apart plates. These procedures contemplate compressing the blood sample in a cyclical fashion while the measurements are made.

In sharp contrast, independent claims 1 and 5 of the application pertain to the use of certain clinical markers determined by the applicant. These clinical markers were determined using blood samples from a number of patients. As noted on page 18 of the application at lines 14-20, the methodology contemplated by the invention demonstrates that myocardial infarction or re-vascularization patients had significantly elevated platelet contractile force measurements and clot elastic modulus measurements compared to the clinical markers (aka, the controls).

At no point in any of claims 3-10 of U.S. Patent 5,293,772 is comparison to a control for determining risk of atherosclerosis or bleeding risk contemplated. This is because, at the time U.S. Patent 5,293,772 was filed, the controls, or “clinical markers”, were not known. That is, it was not known that 5.4-8.4 kilodynes for PCF or 18-26 kilodynes per cm² for CEM constituted a normal range for patients, regardless of ethnicity, or that depressed platelet aggregation did not correlate with clinical risk levels (see page 19 of the application at line 19). As such, claims 1-8 of the application do not constitute obviousness-type double patenting over claims 3-10 of U.S. Patent 5,293,772, and, furthermore, these claims, and particularly claims 2, 3, 6, and 7, which specifically recite the clinical markers, would not be obvious over U.S. Patent 5,293,772.

Furthermore, with respect to independent claim 9 of the application, at no point in

any of claims 3-10 of U.S. Patent 5,293,772 is a process which contemplates performing a treatment or therapy on the patient contemplated or suggested. As such, claims 9-11 of the present application would not constitute obviousness-type double patenting over claims 3-10 of U.S. Patent 5,293,772. Moreover, since U.S. Patent 5,293,772 is concerned with methods of making measurements, rather than methods for determining whether a treatment or therapy is having a positive effect on a patient, claims 9-11 would not be obvious over U.S. Patent 5,293,772.

With respect to the Examiner's specific findings, the undersigned notes the following.

(1) While the present invention in the preferred embodiment utilizes a machine like that of U.S. Patent 5,293,772 (which is to be expected since the applicant was the inventor of U.S. Patent 5,293,772), PCT and CEM are not required to be measured using the machine so described.

(2) The "clinical markers" identified with specificity in claims 2, 3, 6, and 7 of the present application were not known or established until the present application was filed. Therefore, it is simply incorrect to conclude that U.S. Patent 5,293,772 shows comparison to a standard.

(3) U.S. Patent 5,293,772 never shows or suggests a process where a base line measurement is made, a treatment is performed, and then the positive, neutral or negative effects of the treatment are elucidated by making a second measurement.

U.S. Patent 5,205,159 and U.S. Patent 4,986,964, both of which were invented by the same applicant as the present invention, are similar to U.S. Patent 5,293,772 (also invented by the same applicant), and represent respectively an earlier embodiments and the basic machine developed by the applicant. The text of the two patent references is similar to U.S. Patent 5,293,772, and the Examiner's three findings, all of which are refuted above, would be equally inapplicable to the two patent references.

U.S. Patent 5,293,772 issued from an application which was a continuation-in-part (CIP) application of U.S. Patent 5,205,159. As with U.S. Patent 5,293,772, U.S. Patent 5,205,159 is directed to a method for making PCF and CEM measurements on a

sample. Claims 5-9 of U.S. Patent 5,205,159 deal with measuring clot elastic modulus (claim 5) and retraction force (claim 8) by positioning a blood sample between a pair of spaced apart plates, and measuring a pulling force exerted by the blood sample against the pair of plates, while simultaneously performing a compression operation.

U.S. Patent 5,205,159 does not show or suggest any “clinical markers” and, therefore, does not contemplate or make obvious to one of ordinary skill in the art the ability to identify patients at risk for atherosclerosis or that have a bleeding risk. U.S. Patent 5,205,159 does not set forth a normal patient range of 5.4-8.4 kilodynes for PCF or 18-26 kilodynes per cm² for CEM. Thus, the claimed invention for claim 1-8 of the present application would not be obvious over U.S. Patent 5,205,159. Furthermore, the claimed invention sets forth steps for comparison to control values for PCF and CEM measurements in order to ascertain patients at risk for atherosclerosis or bleeding risk. These processes are not alluded to or suggested in claims 5-9 of U.S. Patent 5,205,159; therefore, the claims do not constitute obviousness type double patenting (and are also not obvious under 35 USC 103) for claims 1-8. Moreover, U.S. Patent 5,205,159 has no teaching whatsoever concerning performing a therapy or treatment in between a first and second PCF and/or CEM measurement, and claims 5-9 of U.S. Patent 5,205,159 make no suggestions concerning treatments or therapies. As such claims 9-11 of the present application would not constitute obviousness type double patenting over claims 5-9 of U.S. Patent 5,205,159, and would not be obvious over U.S. Patent 5,205,159.

U.S. Patent 4,986,964 is the basic patent on a device designed by the applicant of the present application for measuring platelet contractile force. Claims 7-15 of U.S. Patent 4,986,964 recite process steps for performing retraction force measurements by positioning a blood sample between parallel plates and monitoring a pulling force therebetween during clotting. Similar to U.S. Patents, 5,205,159 and 5,239,772, U.S. Patent 4,986,964 does not disclose any clinical markers, and does not describe use of the machine during treatment. As such, claims 1-8 of the present application, and particularly claims 2, 3, 6, and 7 which specify certain ranges for PCF and CEM, cannot be obvious over U.S. Patent 4,986,964, and do not constitute obviousness-type double

patenting over claims 7-15 of U.S. Patent 4,986,964. Moreover, claims 9-11 of the present application, which require both a base line measurement, a treatment or therapy, and a second measurement, so that the progress of the treatment or therapy can be assessed, are not obvious over U.S. Patent 4,986,964 and do not constitute obviousness type double patenting over claims 7-15 of U.S. Patent 4,986,964.

VIII. CLAIMS APPENDIX

The text of the claims involved in this Appeal are:

1. A method for identifying patients at risk for atherosclerosis, comprising the steps of:
 obtaining a measurement on the blood sample of a patient selected from the group consisting of platelet contractile force and clot elastic modulus; and
 comparing said measurement to a control to identify a patient as being at risk of atherosclerosis, wherein said patient is identified to be at risk when said measurement is elevated relative to said control.
2. The method of claim 1 wherein said measurement is for platelet contractile force and said control is a value ranging from approximately 5.4 to 8.4 kilodynes.
3. The method of claim 1 wherein said measurement is for clot elastic modulus and said control is a value ranging from approximately 18 to 26 kilodynes per cm².
4. The method of claim 1 wherein said step of obtaining is performed by measuring clot contraction forces exerted during clot formation.
5. A method for identifying patients having a bleeding risk, comprising the steps:
 obtaining a measurement on the blood sample of a patient selected from the group consisting of platelet contractile force and clot elastic modulus; and
 comparing said measurement to a control to identify a patient as being at risk for a bleeding risk, wherein said patient is identified to be at risk when said measurement is reduced relative to said control.
6. The method of claim 5 wherein said measurement is for platelet contractile force and said control is a value ranging from approximately 5.4 to 8.4 kilodynes.

7. The method of claim 5 wherein said measurement is for clot elastic modulus and said control is a value ranging from approximately 18 to 26 kilodynes per cm².
8. The method of claim 5 wherein said step of obtaining is performed by measuring clot contraction forces exerted during clot formation.
9. A method of monitoring treatment or therapy of a patient suffering from unstable angina or myocardial infraction, comprising the steps of:
 - obtaining a baseline measurement on a blood sample taken from said patient selected from the group consisting of platelet contractile force and clot elastic modulus;
 - providing said patient with treatment or therapy;
 - obtaining a measurement on said blood sample after said step of providing, said measurement being selected from the group consisting of platelet contractile force and clot elastic modulus; and
 - comparing said measurement and said baseline measurement, wherein progress of said treatment or therapy is indicated by a decline in said measurement relative to said baseline measurement.
10. The method of claim 9 wherein said measurement and said baseline measurement both provide platelet contractile force values.
11. The method of claim 9 wherein said measurement and said baseline measurement both provide clot elastic modulus values.

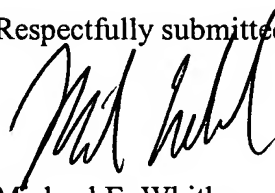
IX. EVIDENCE APPENDIX

No evidence was submitted in this case under 37 C.F.R. 1.130, 1.131, or 1.132, and no evidence was entered separately by the Examiner.

X. RELATED PROCEEDINGS APPENDIX

No decisions have been rendered in any court or by the Board in a related appeal or interference.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael E. Whitham", written over the typed name.

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